

Learning Objectives

Composite Learning Skills
National Curriculum Requirements

Working Scientifically UKS2

General/Asking questions	Observing and measuring (and observing over time)	Comparative and fair tests	Identifying and classifying	Looking for naturally occurring patterns and relationships	Recording and reporting findings	Researching using secondary sources
						
Explore and talk about their own ideas.	Make their own decisions about what observations to make, what measurements to use and for how long to make them, and whether to repeat them.	Select and plan the most appropriate type of scientific enquiry to use to answer scientific questions.	Be able, independently, to use simple databases or keys to identify or classify living things, objects or events.	Identify patterns that might be found in the natural environment.	Decide how to record data from a choice of familiar approaches.	Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact.
Ask pertinent questions.	Choose the most appropriate equipment to make measurements and explain how to use it accurately.	Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.	Be able to discuss reasons why living things are placed in one group and not another.	Systematically investigate the relationship between phenomena, e.g. light and shadows.	Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and talk about how scientific ideas have developed over time.	Use secondary sources, e.g. internet links to research objects, events and phenomena that cannot be experienced in the classroom, e.g. planetary movements, animals from around the world.
Explore ideas and raise different kinds of questions about scientific phenomena.	Recognise that some measurements or observations may need to be repeated.	Be able to state clearly which is the change variable and which is the measurement variable in a fair test.	Suggest reasons for similarities and differences.	Look for different causal relationships in their data and identify evidence that refutes or supports their ideas.	Decide on the most appropriate method to present findings graphically, e.g. using a line graph or bar chart for different types of data.	Gather and record data to help in answering questions.
Refine a scientific question so that it can be tested.	Repeat observations or measurements appropriately.	Systematically identify the effect of changing one variable at a time.	Begin to understand that broad groupings, such as micro-organisms, plants and animals can be subdivided.	Analyse functions, relationships and interactions more systematically.	Justify what type of presentation is appropriate to use.	
Understand that some scientific questions cannot be answered by a particular investigation.	Be able to select appropriate ranges or intervals of measurements.	Recognise that some variables may be more significant than others in investigations.	Identify the positive aspects and limitations of some forms of classification.	Find out about how scientific ideas have changed and developed over time as new evidence is discovered, e.g. ideas about the solar system.	Explain findings using data to identify causal relationships.	
Be able to suggest changes to questions following collection/analysis of data.	Explain how repeating measurements impacts on data collection.	Be able to justify their choice of method as being appropriate to answer their investigative question.	Use and develop keys and other information records to identify, classify and describe living things and materials.	Recognise when evidence supports an idea or not.	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.	

Understand a range of enquiries can be used together to explore an answer to a question.	Recognise when measurements or data are unreliable and be able to take steps to improve this.	Be able to use their results to identify when further tests and observations might be needed.	Create more complex forms of classification tools, e.g. databases, branching keys.	Be able to identify and offer explanations for anomalous results.	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.	
Recognise key aspects of a scientific question.	Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.	Compare their own results with others' and suggest reasons why there may be differences.	Create and use a variety of sources to identify and classify living things, objects and phenomena.	Identifying scientific evidence that has been used to support or refute ideas or arguments.		
		Recognise the limitations of tests.				
		Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.				
		Using test results to make predictions to set up further comparative and fair tests.				